

# Quality of Life in Patients with Chronic Otitis Media

Eurasian Clinical and Analytical Medicine Original Research

## Quality of Life, Chronic Otitis Media

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### Abstract

**Aim:** The aim of this study is to investigate the patients' quality of life related to chronic otitis media (COM) symptoms by using 36-item Short-Form Health Survey (SF-36).

**Material and Method:** Fifty patients with COM and 50 healthy control subjects who were similar to the study group in terms of age, gender, education and marital status were included in the study. Demographical data including age, gender, education status, and marital status of all participants were recorded. All participants completed SF-36 to evaluate health related quality of life.

**Results:** The patients with COM reported significantly lower levels of life quality in terms of physical functioning, physical role difficulty, vitality, social functioning, and emotional role difficulty than control subjects. The COM patients with hearing loss (HL) having additional symptoms (ear discharge and/or tinnitus) reported significantly lower levels of life quality in terms of emotional role difficulty only whereas the other terms were similar. The life quality outcomes of COM patients according to their HL severity did not show any statistically significant difference.

**Discussion:** Patients with COM seem to have poorer quality of life that are most probably related with HL rather than some accompanying and disturbing complaints including tinnitus or ear discharge. Otorhinolaryngologists should keep in their mind that these patients may need psychosocial support to improve their quality of life.

### Keywords

Chronic Otitis Media; Quality of Life; 36-Item Short-Form Health Survey

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## Introduction

Chronic otitis media (COM) is defined as a chronic inflammation in the mucosa of the middle ear and/or mastoid, which affects 2% to 3% of the population. COM is a serious chronic condition that is characterized by many unpleasant symptoms such as hearing impairment, ear discharge, and tinnitus. Any of these symptoms may decline the quality of life [1,2].

Health related quality of life has attracted growing interest over the past 20 years. As many other chronic disorders, COM is likely to be a factor for chronic stress and psychological problems [3]. Previously, studies were focused on hearing loss (HL) merely, but have not been paid attention to the other symptoms of COM; although, the other symptoms also can lead to disturbing psychological problems at least until the hearing loss [4,5].

In this study, we aimed to investigate the patients' quality of life related to COM symptoms by using 36-item Short-Form Health Survey.

## Material and Methods

### Study design

Fifty patients and 50 healthy control subjects who were similar to the study group in terms of age, gender, education and marital status have been included in the study. Demographical data including age, gender, education status, and marital status of all participants were recorded. All participants completed Short Form-36 (SF-36) that evaluate health-related quality of life.

This study was conducted in Mustafa Kemal University Department of Otorhinolaryngology between May 2013 and May 2014. Ethics Committee approval was obtained and the study was conducted in accordance with the Declaration of Helsinki. Informed consent form was obtained from all participants.

### Study population

The patients attended with symptoms of chronic otitis media more than 3 months and diagnosed with COM after a detailed otorhinolaryngologic examination were included in the study. Inclusion criteria were being over 18 years old and being able to complete study forms. Exclusion criteria were age below 18, absence of ability to complete study forms, existence of psychiatric illness or using a psychiatric medication, existence of any systemic or chronic disease, history of previous ear surgery, pregnancy, and patients who refused to participate in the study. Among 123 patients with COM who were admitted to the ENT Department, 50 patients met the inclusion criteria and formed the study group. The control group consisted of 50 subjects who were admitted to ENT clinic with no symptoms related to ear and proven to be normal hearing levels. In control group, subjects were in similar distribution range of age, gender, education, and marital status during the selection. All participants underwent a complete ENT examination and completed Short Form-36 (SF-36) that evaluate health-related quality of life.

### Assessment of COM

Examination of subjects included in the study involved a detailed story, otoscopic evaluation and audiological assessment. Pure-tone audiometry (PTA) was performed by the same audiologist in soundproof booths for objective hearing assessment. Pure-tone air-conduction thresholds were obtained for each ear at 500, 1000, 2000, 3000, 4000, 6000 and 8000 Hz. Bone-conduction thresholds were measured at 500, 2000 and 4000 Hz. We determined hearing impairment as the pure-tone average of audiometric hearing thresholds at 500, 1000, 2000, and 4000 Hz in the better of the two ears. We used the the guidelines of the American Speech-Language-Hearing Association (ASHA) when describing the severity of hearing loss [6].

- Normal hearing (0 to 25 dB HL)
- Mild hearing loss (26 to 40 dB HL)

- Moderate hearing loss (41 to 70 dB HL)
- Severe hearing loss (71 to 90 dB HL)
- Profound hearing loss (greater than 91 dB HL)

The duration, side (unilateral or bilateral), severity, and type of the auditory impairment were recorded. In addition to HL, the findings of each patient's other ear symptoms associated with COM, like ear discharge and tinnitus, were also recorded. Then patients were requested to complete Short Form-36 (SF-36) that evaluate health-related quality of life.

### 36-Item Short Form Health Survey (SF-36)

The SF-36 is a health survey questionnaire used to assess perceived general health status. It successfully measures patients with medical or psychological disorders and healthy subjects as well. This tool provides scores ranging between 0 (worst health status) and 100 (best health status). This scale consists of 36 items subdivided into 8 subscales. These subscales are physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health [7,8]. Higher scores reflect a better quality of life.

### Statistical analysis

Statistical evaluation was carried out using SPSS 19.0 version (SPSS Inc., Chicago, IL, USA). Comparison of categorical variables was done using Chi-square test. Normal distribution of continuous variables in both groups was tested by Kolmogorov-Smirnov test. For the comparison of continuous variables Student's t test was used. Mann-Whitney U test was also used for the comparison of continuous variables where the data did not show normal distribution. Correlations between study variables were calculated by Pearson's correlation coefficient. Statistically significant level was accepted as  $p \leq 0.05$ .

## Results

A total of 100 subjects (66 females and 34 males) were included in the study. The mean age of the study group was  $35.12 \pm 7.59$  years. In the study group, there were 29 (58%) female and 21 (42%) male patients with COM. Nineteen of them (38%) were married and 26 (52%) were single, and the mean duration of education was  $7.96 \pm 1.60$  years in the study group. The control group consisted of 26 female (52%) and 24 male (48%) subjects with a mean age of  $34.08 \pm 6.83$  years. Twenty subjects (40%) were married and 24 (48%) were single, and the mean duration of education was  $7.84 \pm 1.34$  years in the control group. Both groups were statistically similar in terms of age, gender, marital status, and duration of education ( $p=0.473$ ,  $p=0.551$ ,  $p=0.826$ ,  $p=0.686$  respectively).

The mean duration of COM in the study group were  $7.14 \pm 3.00$  years. It was bilateral in 29 patients (58%) and unilateral in 21 patients (42%). Thirty-seven (74%) patients described ear discharge and/or tinnitus in addition to HL, whereas 13 (26%) patients complaint only HL without additional symptoms.

Among them 12 (24%) patients had mild, 21 (42%) patients had mod-

**Table 1.** Results of the 36-Item Short Form Health Survey (SF-36) between COM group and control group

	COM group (n=50)	Control group (n=50)	p
Physical functioning	83.12 ± 8.73	90.96 ± 8.61	0.01
Physical role difficulty	55.50 ± 17.39	87.32 ± 10.72	0.0001
Bodily pain	82.78 ± 13.43	86.62 ± 13.14	0.152
General health perception	84.42 ± 6.26	82.38 ± 6.91	0.126
Vitality	81.74 ± 13.3	86.38 ± 7.16	0.033
Social functioning	58.18 ± 12.50	91.72 ± 6.36	0.0001
Emotional role difficulty	54.64 ± 10.59	94.14 ± 9.01	0.0001
Mental health	85.42 ± 10.34	85.70 ± 10.38	0.893

**Table 2.** Results of the 36-Item Short Form Health Survey (SF-36) between COM patients with hearing impairment only and COM patients with HL having additional symptoms

	HL alone (n=13)	HL+ additional symptoms (n=37)	p
Physical functioning	84.40 ± 8.18	76.46 ± 9.54	0.079
Physical role difficulty	56.23 ± 19.24	55.24 ± 16.97	0.862
Bodily pain	83.76 ± 9.26	82.43 ± 14.71	0.761
General health perception	85.08 ± 6.43	82.53 ± 5.54	0.212
Vitality	83.29 ± 8.15	77.30 ± 22.30	0.166
Social functioning	59.51 ± 12.03	54.38 ± 13.51	0.207
Emotional role difficulty	56.40 ± 9.71	49.61 ± 11.73	0.046
Mental health	85.69 ± 9.18	85.32 ± 10.83	0.913

**Table 3.** Results of the 36-Item Short Form Health Survey (SF-36) between COM group according to hearing loss severity

	Mild HL (n=12)	Moderate HL (n=21)	Severe HL (n=17)	p
Physical functioning	84.41 ± 9.15	82.83 ± 9.58	82.23 ± 8.19	0.749
Physical role difficulty	57.00 ± 16.50	55.71 ± 19.39	53.00 ± 16.05	0.834
Bodily pain	87.17 ± 8.95	81.47 ± 6.29	78.83 ± 23.77	0.221
General health perception	84.00 ± 5.64	83.42 ± 7.98	77.47 ± 19.71	0.966
Vitality	84.83 ± 8.16	83.42 ± 7.98	77.47 ± 19.71	0.261
Social functioning	61.04 ± 13.58	58.70 ± 13.41	52.41 ± 6.82	0.159
Emotional role difficulty	56.23 ± 11.64	53.91 ± 8.41	53.17 ± 10.91	0.660
Mental health	86.58 ± 9.20	86.52 ± 11.16	83.23 ± 10.29	0.573

erate, and 17 (34 %) patients had moderately severe HL according to ASHA guidelines. It was bilateral in 19 patients (58 %) and unilateral in 31 patients (62 %). All of the control subjects were hearing normally as shown by pure-tone audiometry and did not report any ear discharge or tinnitus.

The patients with COM reported significantly lower levels of life quality in terms of physical functioning, physical role difficulty, vitality, social functioning, and emotional role difficulty than control subjects (Table 1). The COM patients with HL having additional symptoms (ear discharge and/or tinnitus) reported significantly lower levels of life quality in terms of emotional role difficulty than COM patients with hearing impairment only whereas the other terms were similar (Table 2).

When the COM patients were grouped according to their HL severity (mild, moderate, and severe), their life quality outcomes did not show any statistically significant difference (Table 3).

## Discussion

Health related quality of life has owned growing interest over the last two decades. Until recently, studies of life quality of subjects with otitis media have focused on tools such as Hearing Satisfaction Scale and its modified version, the Hearing Handicap Inventory for the Elderly, the Glasgow Benefit Inventory, and the 36-item Short-Form Health Survey [7,9-11].

In the present study, we used a widely known tool, SF-36, that has been used to evaluate health related quality of life. We found that the results of life quality outcomes of the patients with COM were significantly lower in terms of physical functioning, physical role difficulty, vitality, social functioning, and emotional role difficulty than control subjects. Consistent with the results of this study, Bakir et al. reported that COM patients had poorer physical role difficulty, general health perception, social functioning, and mental health [12]. Previous studies suggested

that HL, the most chief symptom of COM, impairs psychosocial functioning and quality of life [3,13,14]. Fellingner et al. reported that the physical, psychological, social, and environmental aspects of quality of life of patients with HL were poorer than the normal population [15].

Previous studies have focused on the impact of hearing loss on quality of life, but have not been paid significant attention to other common additional symptoms of COM like ear discharge and tinnitus. In a study, patients undergoing mastoid obliteration surgery for a chronically draining cavity reported a significant improvement on quality of life after surgery [16]. Bakir et al. reported that life quality outcomes of patients with additional symptoms were similar to those without these symptoms [12]. In our study, the life quality outcomes of patients with additional symptoms were similar to those without these symptoms except emotional role difficulty. The COM patients with having additional symptoms reported significantly lower levels of life quality in terms of emotional role difficulty.

In a study conducted by Monzani et al., social functioning and emotional role of patients with mild or moderate acquired HL were poorer than the controls [17]. Bakir et al. reported that the psychological status and quality of life of the COM patients did not differ according to their levels of HL [12]. Similarly, in our study, life quality outcomes of the COM patients were similar in different levels of HL.

The limitations of our study is that the sample size we studied is small. Further detailed studies with larger sample size will be beneficial for the literature.

## Conclusion

Patients with COM seem to have poorer quality of life that are most probably related with HL rather than some accompanying and disturbing complaints including tinnitus or ear discharge. Otorhinolaryngologists treating COM patients should keep in their mind that these patients may need psychosocial support to improve their quality of life.

## Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

## Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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## Conflict of interest

None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.

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